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ABSTRACT

This document contains three poster presentations from a conference on human resource development. "Intrinsic and Extrinsic Work Motivators: Implications for the Incoming Air Force Officer Workforce" (Stephanie K. Johnson, Jason J. Davis, Christopher Rate) reports on a study that explored the literature relating to work motivators to find Air Force specific data on intrinsic and extrinsic work motivators and use that data to investigate the occupational selection hypothesis and occupational socialization hypothesis and their relation to retention in the Air Force. "MBTI (Meyers-Briggs Type Indicator): A Tool to Enhance Team Learning" (Brenda S. Gardner, Sharon J. Korth) describes how the Meyers Briggs Type Indicator can be used to enhance team learning in a graduate-level human resource development program. "Using Technology to Help Foster Critical Thinking and Reflection in Distance and Classroom Instruction: A Poster Presentation of the 'R9' Process" (David Ripley) describes the development and application of the R9 process, which is an original pedagogical strategy to increase critical thinking and reflection in domain knowledge based courses in distance education and face-to-face classroom settings. The paper discusses selected R9 application issues and presents an example illustrating the process activities, venues, and instructor roles involved using the process in a typical class. All three papers contain substantial bibliographies. (MN)

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Intrinsic and Extrinsic Work Motivators: Implications for the Incoming Air Force Officer Workforce

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The purpose of this study is to explore the literature relating to work motivators and to find Air Force specific data on intrinsic and extrinsic work motivators. It investigates both the occupational selection hypothesis and the occupational socialization hypothesis, and relates them to retention in the Air Force. The literature and study results note that there is more research to be done with work motivators.

Key Words: Intrinsic, Extrinsic, Work motivators

To be a cutting-edge business, employers need to be cognizant of the changing nature of the workforce. Employers, like the United States Air Force, are investing in training and recruitment while realizing that a return on that investment requires an understanding of what motivates their workforce, both intrinsically and extrinsically. A strategic source of information to both employee and employer should be the intrinsic and extrinsic motivators that are deemed important by the workforce. The purpose of this research was to explore the issues surrounding intrinsic and extrinsic work motivators. Such accurate information allows for the development of a unique operating model that mirrors the existing reality and will help to benefit both the employee and the employer.

Extrinsic motivators are rewards derived from the job but external to the work itself such as income, prestige, and security. In contrast, intrinsic motivators include rewards obtained directly from work experience such as interest, challenge, responsibility, autonomy, and other similar gratifying features.

To explore these issues four enabling research questions were developed:

1. What are the expectations of incoming Air Force officers regarding both intrinsic and extrinsic work motivators?
2. How will expectations of work motivators, or value placed on specific intrinsic and extrinsic work motivators, change as Air Force officers continue throughout their career?
3. Are gender differences significant in the value placed on various intrinsic and extrinsic work motivators?
4. What are the sociodemographic variables associated with new entrants that may account for some of the intrinsic and extrinsic workplace motivators expected by incoming officers?

It was the aim of this research to begin with a small population, incoming Air Force officers, and use their preferences to help further the knowledge of intrinsic and extrinsic work motivators. It is first meaningful to understand the characteristics of the new workforce generation as it provides a foundation from which they form these work motivators.

The Air Force Newcomers

Strauss and Howe (1997) describe the incoming workforce generation (born between 1961 and 1981) as the 13th Generation. This generation, also called "Generation X," comprises a large part of the Air Force, with approximately 70 percent of the men and women being age 34 or younger. It is assumed that strategically aligning intrinsic and extrinsic work motivators for this generation should pay dividends in the form of retention and recruitment.

Socialization influences such as parents, peers, media, education, religion, technology and culture, can guide how this generation are intrinsically and extrinsically motivated in the work environment (Burley, 1994). For example, Izzi (1998) describes fast-food dinners, over-scheduling and high-tech bedrooms as common occurrences in socializing the "13th generation." Also, caring tasks such as childcare, elder care, lawn care, paying bills, buying groceries, washing cars, and home chores (among others) are being accomplished by hired help. In the work environment Tulgan (1995) suggests that Generation X was raised by both parents working loyally for one company, succeeding and then experiencing a downsizing, a restructuring or a buy-out. This mistrust of loyalty has brought in a generation of workers who value independence and an entrepreneurial spirit. Tulgan (1995) links their short attention spans to their environment of fast-paced technology and the information age. Specific to the Air Force, Omicinski (1999) highlights that the new generation of Air Force officers is more likely to come from fathers with no military experience to pass along to their sons or daughters.

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The generation of workers preparing to enter the workforce in the next few years may have little real-world experience with work issues. Furthermore, their expectations of work motivators may be contradictory (Johnson, 2001). It is suggested that a learning model be developed that will educate and further align expectations with the reality of work issues.

Formation of Work Values

The first step in designing a learning model is to find out where new workers' values lie with regards to expectations in the workplace. As Mortimer and Lorence (1979) noted over twenty years ago: "First, people choose occupations, and thus select their work experiences, on the basis of their values. At the time of entry into the labor force, the individual attempts to select a work role that will maximize rewards deemed most important . . ." (p. 1364). More recently, Johnson (2001) notes "in the context of work, work values are beliefs about the desirability of various work features and are usually defined by referencing several types of rewards derived from working" (p. 317).

The research on work values reveals two competing ideas. The first is the "occupational selection hypothesis," in which people choose their occupations based on psychological characteristics and values already in place (Mortimer & Lorence, 1979; Lindsay & Knox, 1984; Johnson, 2001). The second is based on the reinforcement hypothesis, or what Mortimer and Lorence (1979) called the "occupational socialization hypothesis" which asserts that rewards obtained on the job grow in importance over time and mold work values, whereas the absence of rewards lessens their values over time (Mortimer & Lorence, 1979; Johnson, 2001). This idea of value reinforcement through an occupation is consistent with Rokeach's (1973) theory of values, which affirms that values will change to preserve one's positive self-concept, and likewise valuing something that one does not have could diminish self-esteem (Rokeach, 1973).

Another issue to consider is that values formed in early adulthood are likely to change with work experience and age. Johnson (2001) argues that adolescent occupational aspirations exceed what is available in the labor market, making their work values reflect strong desires for work motivators that are unrealistic (Johnson, 2001, p. 316). Her longitudinal study found that the proportion of respondents rating each job feature as "very important" declined over the 13-14 year gap between testing phases. The question is whether or not you can accurately determine work values at the high school or college level that will be generalizeable to adult worker expectations. Johnson (2001) notes that as young people gain work experience, they also gain a better understanding of the labor market and what is realistically attainable.

It is also necessary to address a possible gender difference with regard to work motivators. Studies have found that women place a greater emphasis on intrinsic, altruistic, and social rewards from work, while men place more importance on the extrinsic motivators obtained from work (Johnson, 2001; Lindsay & Knox, 1984). Johnson also found that the gender gap in extrinsic values did not lessen throughout the time between testing yet both males and females attached less importance to extrinsic values over time. As times change, this gender differentiation due to socialization is decreasing. Women are beginning to close the gap regarding the value they place on extrinsic motivators while maintaining a stronger orientation towards intrinsic, altruistic, and social rewards (Johnson, 2001). In support of the reinforcement hypothesis, as young people begin to become more realistic about what rewards are available to them in the workplace, the gender difference in work values may narrow (Johnson, 2001).

Another variable is sociological changes, particularly family roles and economic standing. Johnson (2001) describes a gender model that would predict weaker effects of work motivators for women when compared to men, with women experiencing a decrease in the importance of work motivators as they enter family roles. Additionally, family roles for males solidify their breadwinner role increasing their focus on extrinsic motivators. In general, having a family and children has been positively associated with an increase of importance placed on extrinsic motivators across both genders (Johnson, 2001). Lindsay and Knox (1984) assert that social structure variables on life changes, particularly parenthood, education, origin, race, and gender, have a big impact on the formation of work values.

Economic status also plays a significant role in facilitating the formation of work values. Mortimer and Lorence (1979) note that when an individual has inadequate economic resources, income and other extrinsic motivators assume a higher priority. Comparatively, when material needs are met the salience of extrinsic motivators lessens and the worker concentrates on more intrinsic job satisfactions (Mortimer & Lorence, 1979). Furthermore, intrinsic occupational rewards increase with occupational prestige, while extrinsic rewards are highly valued at lower occupational levels (Mortimer & Lorence, 1979).

In summary, significant trends exist in the study of work values. However, numerous studies provide support for different hypotheses, or conflicting findings with regards to gender differences, the stability of work values over time, and the impact of demographic and socioeconomic conditions on work values. This study seeks to identify

what work values officer candidates consider most important, the possible gender differences across these values, and the possible incongruity between valued motivators and current motivators that may be effecting retention rates in the United States Air Force. Most importantly, the study will seek to identify whether incoming Air Force officers will value extrinsic work motivators over intrinsic work motivators, and whether there will be any gender difference in this preference.

Method

A survey was designed to provide insight into the different values placed on both intrinsic and extrinsic work motivators. The data helped analyze how cadets from the United States Air Force Academy (USAFA) and various Reserve Officer Training Corps (ROTC) programs preparing to enter active duty perceived intrinsic and extrinsic work motivators. Comparisons were made between commissioning source and gender. Furthermore, in addition to the previously presented research questions, two hypotheses were formulated:

Hypothesis 1: There will be no difference between incoming USAFA and ROTC officers in the respect that both will value extrinsic motivators more than intrinsic motivators.

Hypothesis 2: Extrinsic motivators will be rated as more important than intrinsic motivators across genders.

Sample

The sample consisted of 343 cadets entering the active duty Air Force within the next year. Specifically, the sample contained 275 USAFA cadets and 68 ROTC cadets enrolled at universities in Colorado and Wyoming. The average age was between 21 and 22 years old. The majority of the sample had mothers with some college or trade school education that worked either full or part time while the cadet had lived at home. The majority of the fathers of the sample population had a college degree. Of the ROTC population, nine were married with the majority having a spouse that had some college or trade school education that worked full-time. Of the nine married cadets, six had children.

Instrument

An existing multipart survey, The Career Issues Survey, was directly administered for this study (Covin & Brush, 1993, 1991). The instrument language was slightly modified to fit the cadet population and context. For this study, only sections two and three of the Career Issues Survey were used (questions 57-91). These two sections contained questions related to extrinsic and intrinsic motivators. The participants completed the surveys in a classroom setting with the researcher present to answer questions.

Data Analysis

To assess for "dimensionality and commonality" (Covin & Brush, 1993, p. 36) among the 34 Likert-scaled items, a factor analysis was performed, aligning the questions into two factors – intrinsic and extrinsic motivators. The factor analysis was used to generate subscores for the two dependent variables – intrinsic and extrinsic work motivators. Next, the subscales derived by the factor analysis were utilized to compare commissioning source and gender. Once the researcher established the reliability of the factors derived by the use of a reliability analysis function, a two-way Analysis of Variance (GLM Univariate) and a Multivariate ANOVA were used to test for interactions between the two independent variables (commissioning source and gender) on both Factor One (intrinsic motivators) and Factor Two (extrinsic motivators).

Factor Analysis

The first step in the data analysis was to identify what factors would be present in the data. This was accomplished using a factor analysis. Fraenkel and Wallen (1996) describe factor analysis as "a technique that allows the researcher to determine if many variables can be described by a few factors...the technique essentially involves a search for clusters of variables, all of which are correlated with each other" (p.314). A factor analysis was performed using principal component factoring and a varimax rotation using questions 57-91 of the survey and extracting all of the questions into two factors. The questions within each factor with loadings above .5 were identified and retained (see Appendix).

To ensure that the loading in each factor was actually contributing to the factor, a reliability analysis was run. By analyzing the alpha reliability coefficient, one can determine the strength of the scale. For Factor One, alpha was .84, and for Factor Two alpha was .79. In both Factors, the alpha reliability coefficient would not have improved with a removal of any one item.

A test for correlation amongst the two factors was also accomplished. The purpose was to verify whether a relationship existed between the two factors. A Pearson product-moment coefficient (r) was calculated for the two factors. Correlation coefficients for Factor One and Two were .17, revealing no significant correlation between the two factors.

Factor One.

Factor One contained questions directed at weighing the importance of intrinsic motivators to incoming Air Force officers. After analyzing the factor loadings and the descriptors present in each question, it was decided to retain questions 72, 74, 78, 79, 81, 84, 85, 88, 89, 90, and 91. Questions 63, 86, and 87 were removed because their descriptors did not fit with the other questions.

A high score on any item in the factor would indicate that the particular intrinsic motivator is a very important aspect of the workplace to the sample. There was no significance in commissioning source, gender, or the interaction for Factor One. The data demonstrates that intrinsic motivators were rated higher than extrinsic across both commissioning sources and gender (see Tables 1 and 2). The men rated the importance of intrinsic motivators .02 higher than the women. In addition, ROTC cadets rated the importance of intrinsic motivators .01 higher than USAFA cadets. Furthermore, there was no significance in the univariate ANOVA performed on Factor One (see Table 3).

Factor Two.

Factor Two consisted of questions directed at weighing the importance of extrinsic motivators to incoming Air Force Officers. After analyzing the factor loadings and the descriptors present in each question in this factor, it was decided to retain questions 57, 58, 60, 64, 66, 67, 68, and 70. Questions 71, 80, and 82 were removed because their descriptors did not fit in with the other questions.

For this sample, a high score indicated that certain extrinsic motivators are important aspects of the workplace. Factor Two had a lower mean than Factor One. The female sample's mean was .34 higher than the males on this factor, which is indicated by the significance on gender in Factor Two: $F(1,343)=6.74$, $p=.01$ (see Table 4). In addition, USAFA cadets' mean was .16 higher than ROTC's, as indicated by the significance for commissioning source: $F(1,343)=6.30$, $p=.01$. Therefore, both gender and commissioning source main effects were significant for Factor Two.

Analysis for Research Questions and Hypotheses

The research questions and hypotheses suggest that source of commission and gender will relate to intrinsic and extrinsic motivators. A two-way Multivariate Analysis of Variance (MANOVA) was used to test for main effects of the sample groups (USAFA cadets versus ROTC cadets, and men versus women) on the two factors. The MANOVA indicated there are significant main effects for both commissioning source (Wilks's lambda = .97, F = 4.61, df = 2/326, p = .011) and gender (Wilks's lambda = .98, F = 3.22, df = 2/326, p = .041). The MANOVA also indicated no significant interactions between commissioning source and gender (Wilks's lambda = .99, F = 2.31, df = 2/32, p = .10).

The univariate tests for the influence of commissioning source and gender were significant ($p<.05$) for the main effects of gender and commissioning source for Factor Two (extrinsic motivators). The interaction between gender and commissioning source was not significant in either Factor, nor was anything else significant in Factor One (intrinsic motivators).

T-Test

The purpose of paired-samples T-test is to compare the means of two variables for a single group. Since one of the objectives was to determine if incoming Air Force officers would value extrinsic motivators (Factor Two) more than intrinsic motivators (Factor One), a paired-samples T-test would reveal any difference. The mean for intrinsic motivators was 4.17 while the mean for extrinsic motivators was 3.69. This difference was significant on a two tailed measure, p = .000.

Individual Question Means

Another analysis component is individual question means. These means reveal on a smaller level what the extremes are for importance or what is really not important to the incoming officer within the confines of both extrinsic and intrinsic motivators. The questions rated the most important included: 1) is intellectually stimulating, 2) provides a feeling of accomplishment, and 3) medical benefits. These highest scores are inclusive of commissioning sources and genders.

Interpretation

The first research question asked what the expectations of incoming Air Force officers would be regarding both intrinsic and extrinsic work motivators. A descriptive analysis of means suggests the six extrinsic and intrinsic motivators rated the highest were: 1) Working Conditions (extrinsic), 2) Medical Benefits (extrinsic), 3) Allows adequate time for family and friends (intrinsic), 4) Provides job security (intrinsic), 5) Is intellectually stimulating (intrinsic), and 6) Provides a feeling of accomplishment (intrinsic). Conversely, the three questions rated lowest by the group, related to Factor Two, were 1) Childcare policies, 2) Maternity Leave Policies, and 3) Paternity Leave Policies (all extrinsic factors).

Since the majority of 20-21 years olds do not have immediate concerns regarding children, and USAFA cadets are prohibited from having children while they are cadets, it is not surprising that the group rated these three questions lowest. However, the more interesting finding lies in the higher rated questions. The general theme of the highly rated questions was one of internal satisfaction due to accomplishment and the work environment, rather than one based on extrinsic motivators such as money. Although this finding generally does not support our hypothesis, it speaks volumes for those entering the Air Force because it shows that they value the nature of their work, and not their pay. This is a positive consideration as most Air Force personnel have the potential to earn more income in the civilian sector. Therefore, these findings suggest that the Air Force is sufficiently tending to these needs. With regards to retention, it would be important to focus on the motivators, both extrinsic and intrinsic, and to try to maximize those in the Air Force officer work environment.

The second research question asked how expectations of work motivators, or value placed on specific intrinsic and extrinsic work motivators, would change as Air Force officers continue throughout their career. The data suggests that there is more importance placed on intrinsic motivators in the workplace rather than extrinsic motivators as can be explained by the difference in means and the paired-sample T-test. However, the first research question should be a good indication that it is a distinct possibility that the answer lies much deeper than a simple diagnosis. The answer may very well be that incoming officers value a distinct mix of intrinsic and extrinsic motivators based on individual socialization and environmental factors. In addition, without the use of a longitudinal study of incoming officers, both before entry and after a specified time in service, it is indeterminable how these values will change as their career progresses. However, the retention issues surrounding this question can be answered by the research. One of two things most likely happens. The first option is that incoming officers follow the "occupational selection hypothesis," in which people choose their occupations based on psychological characteristics and values already in place (Mortimer & Lorence, 1979; Lindsay & Knox, 1984; Johnson, 2001). Or they follow the "occupational socialization hypothesis" which asserts that rewards obtained on the job grow in importance over time and mold work values, whereas the absence of rewards lessens their values over time (Mortimer & Lorence, 1979; Johnson, 2001). The thought is that if they are following the "occupational selection hypothesis" then retention solutions are minimal because they are basing their job preference off of predetermined values. Therefore, if the Air Force occupation does not satisfy those values then the officer will most likely separate from the Air Force. However, if it is the case that they are following the "occupational socialization hypothesis," then it is important to find out what motivators are important to them as their career develops, and to positively reinforce those motivators for retention purposes.

The third research question sought to identify gender value differences on various intrinsic and extrinsic work motivators. The data does not support gender differences related to intrinsic motivators; the gender main effect was significant for extrinsic motivators (Factor Two). One might argue that the differences in values placed on the extrinsic motivator questions are most likely due to different gender roles and the different value systems across genders. This finding warrants further research. As of now, data suggest no significant motivators that will drastically impact retention for one gender that would not also have a positive impact on the other. The fact that male rated extrinsic motivators as slightly higher than females is in accordance with past research (Mortimer & Lorence, 1979; Lindsay & Knox, 1984; Johnson, 2001).

The fourth research question asked if there were any sociodemographic variables associated with new entrants that may account for some of the intrinsic and extrinsic workplace motivators expected to be delivered by their employer. It can be assumed from the data that cadets planning to enter the workforce are expecting some type of

assistance from their employer with issues related to work and family. An interesting demographic finding was that the majority of mothers of the cadets had worked either full or part-time while the cadet had lived at home. Additionally, all of the spouses of the ROTC cadets had jobs. This is an indicator that issues of work-family balance had been present during their formative years in which both of their parents worked.

In summary, although the study answered the research questions quite well, it rejected both of the hypotheses. Intrinsic motivators were in fact rated higher than extrinsic motivators, which is the exact opposite of the prediction. The first hypothesis predicted that there would be no difference between USAFA and ROTC incoming officers in the respect that both will value extrinsic motivators more than intrinsic motivators. Although there was no significant difference between USAFA and ROTC on their ratings of intrinsic motivators (Factor One), commissioning source was significant for extrinsic motivators (Factor Two). In addition, both groups rated intrinsic motivators higher than extrinsic motivators. The second hypothesis stated that extrinsic motivators would be rated as more important than intrinsic motivators across both genders. Again, since intrinsic motivators were rated as more important across both commissioning source and gender, this hypothesis is also rejected.

A major objective of this research has been to ascertain work motivators of incoming officers into the active Air Force. The efforts have resulted in data that can help assist with recruiting, retention and education. Additionally, the data begins to lay the foundations for future development in the area of intrinsic and extrinsic workforce desires. Toward this goal the research yielded results which indicate that incoming Air Force officers can differ in their work values. Further studies of work motivators, especially specific to Air Force officers are needed. A longitudinal study would reveal the changing nature of work motivators that would immensely help form a better learning model for the United States Air Force and other employers. Ultimately, this could increase retention and make for a more reliable and efficient workforce.

References

Burley, K.A. (1994). Gender differences and similarities in coping responses to anticipated work-family conflict. *Psychological Reports, 74,* 115-123.

Covin, T.J., & Brush, C.C. (1993). A comparison of student and human resource professional attitudes toward work and family issues. Group & Organization Management, 18, 29-29.

Covin, T.J., & Brush, C.C. (1991). An examination of male and female attitudes toward career and family issues. *Sex Roles, 25,* 393-415.

Fraenkel, J.R., & Wallen, N.E. (1996). *How to design and evaluate research in education.* New York: McGraw-Hill.

Izzi, M.H. (1998). Perspectives on work: Realigning people and technology. In M. Mackavey & R. Levin (Eds.), *Shared purpose: Working together to build strong families and high-performance companies* (pp. 69-86). New York: AMACOM

Johnson, M.K. (2001). Change in job values during the transition to adulthood. *Work and Occupations, 28,* 315-345.

Lindsay, P., & Knox, W.E. (1984). Continuity and change in work values among young adults: A longitudinal study. *American Journal of Sociology, 4,* 919-931.

Mortimer, J.T. & Lorence, J. (1979). Work experience and occupational value socialization: A longitudinal study. *American Journal of Sociology, 6,* 1361-1385.

Omicinski, J. (1999, March 7). Too few good men, women? Military's struggles on recruiting front may hurt united states' readiness. *The Coloradoan,* pp. E1, E4.

Rokeach, M. (1973). The nature of human values. New York: Free Press.

Strauss, W., & Howe, N. (1997). *The fourth turning: an American prophecy,* New York: Bantam Doubleday Dell.

Tulgan, B. (1995). Managing generation X: how to bring out the best in young talent. Santa Monica, CA: Merritt.

Appendix

Factor One (intrinsic motivators) includes questions:

72. Requires originality and creativity
74. Encourages continued development of knowledge and skills
78. Gives you the responsibilities for taking risks
79. Requires working on problems of central importance to the organization
81. Provides change and variety in duties and activities

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84. Permits advancement to higher levels of responsibility
85. Permits working independently
88. Is intellectually stimulating
89. Permits you to work for superiors you admire and respect
90. Permits you to develop your own methods of doing the work
91. Provides a feeling of accomplishment

Factor Two (extrinsic motivators) includes questions:

57. Level of Pay
58. Child Care Policies
60. Vacation policies
64. Working hours
66. Medical benefits
67. Maternity leave policies
68. Yearly pay increases
70. Paternity leave policies
71. Allows adequate time for family/friends
80. Provides ample leisure time off the job
81. Provides comfortable working conditions

Note: For an entire copy of the survey refer to Covin & Brush, 1993 & 1991

Table 1. *Mean Factor Scores of Male and Female Respondents*

Factor	Men (n = 255)	Women (n = 88)
Factor 1 Intrinsic Motivators	Mean = 4.17	Mean = 4.15
Factor 2 Extrinsic Motivators	Mean = 3.61	Mean = 3.95

Legend of Likert Scale: Range was 1-5 with 1: Not Important, 3: Neutral, 5:Very Important

Table 2. *Mean Factor Scores of USAFA and ROTC Respondents*

Factor	ROTC (n = 68)	USAFA (n = 275)
Factor 1 Intrinsic Motivators	Mean = 4.17	Mean = 4.16
Factor 2 Extrinsic Motivators	Mean = 3.57	Mean = 3.73

Legend of Likert Scale: Range was 1-5 with 1: Not Important, 3: Neutral, 5:Very Important

Table 3. *ANOVA for Factor One (Intrinsic Motivators)*

Source	Sum of Squares	df	Mean Square	F	Sig.
Commissioning Source (Univer2)	.04	1	.04	.155	.694
Gender	.164	1	.164	.697	.404
Univer2 * Gender	.188	1	.188	.801	.372
Error	79.291	337	.235	–	–
Total	5995.736	341	–	–	–

Note: p<. 05

Table 4. *ANOVA for Factor Two (Extrinsic Motivators)*

Source	Sum of Squares	df	Mean Square	F	Sig.
Commissioning Source (Univer2)	2.23	1	2.23	6.30	.013*
Gender	2.39	1	2.39	6.74	.010*
Univer2 * Gender	1.09	1	1.09	3.07	.081
Error	120.14	339	.354	–	–
Total	4820.42	343	–	–	–

MBTI: A Tool to Enhance Team Learning

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Using teams of employees to get work done in organizations is becoming increasingly more common across the world. This article focuses on an approach to training HRD professionals to learn and model effective team behavior. It describes how the MBTI is used as a tool to enhance team learning in a graduate level HRD program. Conclusions and recommendations for HRD academic and training programs are explored.

Keywords: Teams, Learning Styles, Academic Programs

Across the world, organizations utilize teams in the workplace. From the United Kingdom, Australia, Ireland, Malaysia, and the United States, descriptions of workplace teams abound (Wellins, Byham & Dixon, 1994). While some of these teams are domestic, with all of the members from the same country, the increasingly global workplace has led to the creation of many transnational teams as well. The number of teams used in the United States has increased since the 1980s when total quality and other similar management philosophies pointed to team-based work environments as the success formula of the future (Dobyns & Crawford-Mason, 1991). When faced with the challenges of a changing workforce, global competition, technological innovations, decreases in productivity, and shifting work values, many U.S. organizations used teams as part of their newly designed work structure.

Problem Statement

HRD professionals are often responsible for the training of teams in the workplace and must understand the elements of team learning and effective team behavior. The best learning comes from personal experience, so the challenge is to provide HRD professionals with team learning experiences that they can transfer to the workplace.

Theoretical Framework

The Myers-Briggs Type Indicator has been used extensively in organizations and educational institutions and is based on the work of the Swiss psychotherapist Carl Jung (Myers, 1993; Provost & Anchors, 1987). The MBTI reflects individual preferences for energy (Extraversion and Introversion), information gathering (Sensing and Intuition), decision making (Thinking and Feeling), and lifestyle (Judging and Perceiving). Each of these four dimensions is measured on a scale; sixteen unique personality types result from the combination of the four MBTI preference scales.

One common use of the MBTI is with learning style research. For example, extraversion has been found to be associated with preferences for working in a group, whereas introversion is related to working individually. Sensing is associated with practical interests, while intuition is related to tasks that call for imagination. Research has shown that students high in the thinking dimension prefer objective material to study, while those high in the feeling dimension learn through personal relationships. Finally, the judging component relates to formalized instruction, whereas the perceiving component corresponds to informal problem solving (Lawrence, 1984).

Lynch & Sellers (1996) developed descriptions of four college/learning environments based on a quadrant combination of MBTI attitude and perception preferences which were most applicable to learning (1996) (See Figure 1). Lawrence (1994), and Lynch and Sellers use combinations of the first two dimensions of the MBTI to describe different types of classrooms.

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Figure 1. Learning Style Preferences and Training

ES Training Activities Extravert – Sensing	IS Training Activities Introvert - Sensing
- facts, information - organized schedule - practical hands-on experience - field trips - on-the-job training - working in groups - thinking aloud - group reports	- practical, realistic - organized with steady pace - step-by-step sequence, attention to detail - clear expectation from trainer - allow time to think before working in groups - demonstrations - computer assisted instruction - films, videos, audio-visual aids
EN Training Activities **Extravert – Intuitive**	**IN Training Activities** **Introvert - Intuitive**
- variety - group work on problem-solving tasks - discuss situations to spark imagination - freedom to choose alternatives - deadlines and strict time schedule de-emphasized	- serious reading - tutorials, independent study - autonomy in setting own goals and plan - allow time to think through topic - explore special interest topics in depth - move at the rate preferred by the students - allow for individual work

The MBTI has also been used extensively to enhance teamwork. According to Hirsh, the MBTI specifically aids team members by:

- reducing unproductive work
- identifying areas of strength and possible area of weakness for the team
- clarifying team behavior
- helping to match specific task assignments with team members according to their MBTI preferences
- supplying a framework in which team members can understand and better handle conflict
- helping individuals understand how different perspectives and methods can lead to effective problem solving
- maximizing a team's diversity in order to reach more useful and insightful conclusions. (Hirsh, 1992, p. 7).

Premise and Research Question

This research is based upon the premise that (a) teams are common in today's workplace; (b) HRD professionals must learn and model effective team behavior; and (c) academic and training programs must be developed that teach and model team behavior. The cycle of learning and performance starts with academic/training programs teaching team-related skills to HRD professionals, continues as HRD professionals utilize these skills on their jobs as they train others, and leads to improved team skills for employees.

The following research question served as a guide for this study: How can the MBTI be used as a tool to enhance team learning in academic settings?

Methodology

In this study, quantitative and qualitative data were collected in a course on organization behavior, offered during the first

semester of graduate study at a private US university, as part of an academic program in HRD. To determine personality and learning type preferences of HRD professionals, data were collected from a total of 241 HRD graduate students over a six-year period enrolled in this course, and were analyzed using Statistical Package for Social Sciences (SPSS) for Windows Release 6.1.

The students were all working adults, ranging in age from 21 to 56, with a mean age of 37, standard deviation of 7.98. Seventy-six percent of the group was female, and years of full-time work experience ranged from 0 to 37, with a mean of 13.2 and a standard deviation of 8.02. During the second meeting of the organization behavior class, the Myers-Briggs Type Indicator-Form G (MBTI), developed by Katharine Cook Briggs and Isabel Briggs Myers, was administered to the students by the researchers who were also the professors of the course.

In addition, qualitative data were collected through participant-observation and document review. Documents included course materials, assignments, as well as student learning journals and reflective papers. Data were analyzed by constant comparative method (Lincoln & Guba, 1985), reflecting on the meaning of what was heard and seen, and using existing literature when useful.

Results and Findings

MBTI Personality Preferences

This study found that in this HRD graduate student/practitioner group, the majority of students were Extravert, Intuitive, Feeling and Judging. This contrasts with the national US adult norms of majority preferences in Introvert, Sensing, and Thinking (Hammer & Mitchell, 1996). Preferences of other related fields are also included in Table 1, and indicate similarities with the HRD group in the judging preference (Myers & McCaulley, 1985).

Table 1. *MBTI Personality Preferences*

	HRD Graduate Students (n=241)	US Adult Norms (n=1,267)	Personnel & Labor Relations Workers (n=90)	Employment Development Specialists (n=80)	Teachers-University (n=2,282)
Extravert	61%	46%	54%	54%	46%
Introvert	39%	54%	46%	46%	54%
Sensing	43%	68%	56%	40%	36%
Intuition	57%	32%	44%	60%	64%
Thinking	49%	53%	66%	54%	53%
Feeling	51%	47%	34%	46%	47%
Judging	61%	58%	67%	61%	66%
Perceiving	39%	42%	33%	39%	34%

Use of MBTI to Design Team Training

Gathering data about personality and learning style preferences in relation to energy, information gathering, decision making, and lifestyle provided researchers with a layer of analysis useful in the design and implementation of team training in the classroom, as well as a tool that these students could use in their own teams in the classroom and back on-

the-job.

Researchers worked with students to help them understand how preferences could aid in improving their classroom groups, as well as the teams they were implementing and leading in the workplace. After reviewing and processing Jung's personality type theory and its relationship to the students' MBTI results, researchers organized students into small groups of 6-7 for group projects lasting over two semesters. Teams were organized, however, not by any grouping of specific MBTI types, but toward a mixture of gender, race, and levels and type of work experience.

Activities designed to help the students increase their self-awareness using MBTI personality preferences included, of course, the administration of the MBTI and thorough processing of its results. Researchers posed questions of the students such as: How do I prefer to gather information and make decisions? What leadership qualities do I value? How do I prefer to learn? What irritates me about my teammates? How can I contribute to the team? How do I react to conflict? How well do I listen? How do I give and receive feedback? What role do I play in a group setting? How well do I lead or follow? For example, students with Introversion-Sensing-Thinking-Judging (ISTJ) profiles are likely to be thorough, systematic, hard-working, and careful with detail. With this heightened self-knowledge, these students may better understand why they value traditional, hierarchical approaches to leadership and why they get irritated at those who do not follow through with commitments. Two project assignments specifically helped students increase their self-awareness: entries in a learning journal kept over two semesters, and a comprehensive analysis of the student's learning as a culminating project for the year.

To assist students in applying personality type theory to groups and teamwork, researchers organized experiential activities for the teams which were processed using MBTI results. For example, problem-solving activities and outdoor leadership activities all provided data that could be analyzed by the students using personality type theory. Group projects culminating in a presentation, report and group analysis were natural areas in which group process questions were asked of the students: How do we manage our meetings? How do we make decisions or solve problems? How do we manage our projects? How do we develop shared goals and create/maintain commitment to those goals? How do we create a climate that fosters trust and openness? How do we balance utilizing the strengths of our members while fostering individual personal development? For example,"time" can become an issue with teams and their management of meetings. Team members with the Thinking preference may prefer to be brief, concise and task-oriented, while those with the Feeling preference may want to take the time needed to build and maintain interpersonal relationships. Once team members understand that these differences exist and recognize the value of both perspectives, they can leverage them to enhance the effectiveness of their team meetings. Again, the experiences and analysis using personality type theory aided in the students' understanding and improving their classroom group, as well as how to better lead and implement teams back in their workplaces.

Course feedback from the students has been generally very positive. Informal comments, information provided on the written individual and group analysis papers, and formal end-of-class evaluation results indicate that the students find the MBTI a useful tool in increasing their self-awareness and enhancing their classroom and workplace group functioning. One student, in her individual analysis, explained that knowing about the different MBTI preferences helped her realize that she may have been misjudging the quiet members of her group as lacking commitment. As a result, she was able to appreciate their differences in style and help find ways to utilize their strengths. Another student reported about how he successfully used one of the experiential class activities with a group he was facilitating in the workplace.

MBTI Learning Styles Consideration for Training

The MBTI can also provide insight into learning style preferences of class participants. Because there will be a mix of styles in any group, it is important to create training that includes learning activities appealing to all preference types. Knowing the learning style preferences of the participants in a given group as well as the types of corresponding activities allows the flexibility to adapt the training to meet the specific needs of the group.

Applying these ideas to team building training implies that there will be a variety of individual and group activities, and that some portions of the training will be practical, hands-on, and structured while other portions will allow for personal exploration. The intent is to utilize an assortment of methods so as to tap into current learning strengths as well as to stretch and increase the participants' learning abilities in other dimensions. Researchers utilized discussions, psychomotor activities (including outdoor experiential exercises, if possible) and group work to appeal to the extraversion

dimension. Conversely, reading, individual work, and time for internal processing were also included to support the learning strengths of those with introversion preferences. Some parts of the instruction, for example, on project management, progressed in a step-by-step manner (extravert-sensing), while other parts involved having students find their own way in the material (introvert-intuition), such as in conducting research and writing papers. Finally, the course involved a mix of prescribed tasks, such as the development of an annotated bibliography on an HRD related topic (introvert-sensing), and discovery tasks, such as finding creative ways to solve hypothetical problems in a group (extravert-intuitive).

Conclusions and Recommendations

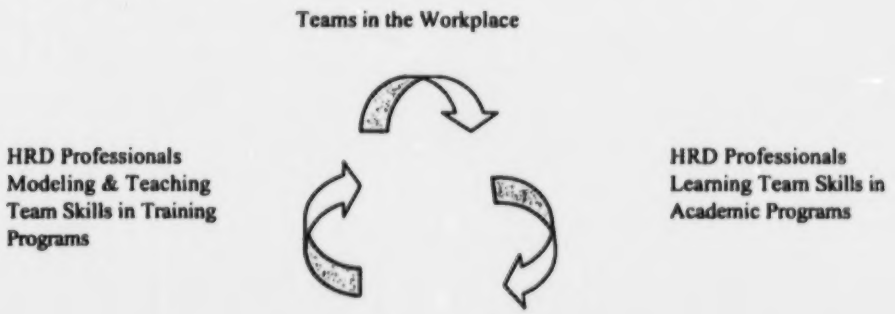
First, academics who design classroom training for HRD students may wish to use a tool such as the MBTI as a "lens" in which to review their instructional methods to determine balance and appropriateness for their group. The HRD graduate student sample reported in this article indicated that the least favored learning environment was Introvert-Intuitive, which was also reported in Lynch and Sellers' 1996 study. In a number of studies, however, Introvert-Intuitive is a very common personality style and learning preference for college professors (Lynch & Sellers; Murphy, 1987; Myers & McCaulley, 1985). (See Table 1). If professors "teach to type" (create a learning environment consistent with their own learning style preferences), a mismatch may occur between learners' preferences and professors' activities. Awareness of the implications that may develop in the classroom as a result of this type of situation can be a first step for reviewing the curriculum design for a course.

In contrast, the most favored learning style preference was Extravert-Intuitive for HRD graduate students. HRD professionals who are designing classroom training in the workplace for other occupations such as engineers, health care professionals, computer analysts, etc., would also do well to determine if their own preferences for learning activities might be overshadowing the learning needs of their students.

Finally, much more work must be done to study the role of the HRD professional in team learning and team/organizational effectiveness. This paper described how knowledge of the MBTI personality and learning styles can be used to design training for team members in the classroom. More research is needed to establish measures of team learning and transfer of skills back on the job.

Clearly, the study described in this paper is just a beginning. Further research is needed in each phase of the team learning/performance cycle (academic programs, team development in the workplace, team and organizational effectiveness) and to determine the connections between the phases (See Figure 2).

Figure 2. Team Learning/Performance Cycle



Contribution to the Field of HRD

This paper showed how the MBTI can be used to enhance the team learning of HRD professionals in an academic program. In the workplace, HRD professionals have the primary responsibility for developing and implementing team-

related training so that employees can develop the necessary competence. Further, they have an obligation to model effective team behaviors themselves. How do HRD professionals learn these important team skills? The team learning/performance cycle starts with academic programs increasing their HRD students' self-awareness and learning about groups and organizations. HRD professionals must take an active role in learning how to model and teach effective team behaviors so that teams are trained for success, the learning/performance cycle continues, and organizations maximize their capabilities to transform in order to meet strategic goals.

References

Dobyns, L., & Crawford-Mason, C. (1991). *Quality or else: The revolution in world business*. Boston: Houghton Mifflin.

Hammer, A. L., & Mitchell, W. D. (1996). The distribution of MBTI types in the US by gender and ethnic group. *Journal of Psychological Type, 37*, 2-15.

Hirsh, S. K. (1992). *MBTI team building program: Team member's guide*, Palo Alto, CA: Consulting Psychologists Press.

Lawrence, G. (1984). A synthesis of learning style research involving the MBTI. *Journal of Psychological Type, 8*, 2-15.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage.

Lynch, A. Q., & Sellers, P. A. (1996). Preferences for different educational environments and psychological type: A comparison of adult learners and traditional age college students. *Journal of Psychological Type, 39*, 18-29.

Murphy, E. (1987). *I am a good teacher*. Gainesville, FL: Center for Applications of Psychological Type.

Myers, I. B. (1993). *Introduction to type* (5th ed.). Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.

Provost, J. A., & Anchors, S. (1987). *Applications of Meyers-Briggs Type Indicator in higher education*. Palo Alto, CA: Consulting Psychologists Press.

Wellins, R. S., Byham, W. C., & Dixon, G. R. (1994). *Inside teams: How 20 world-class organizations are winning through teamwork*. San Francisco: Jossey-Bass.

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Using Technology to Help Foster Critical Thinking and Reflection in Distance and Classroom Instruction: A Poster Presentation of the "R9" Process

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This poster presentation describes the development and application of the "R9" process, an original pedagogical strategy designed to increase critical thinking and reflection in domain knowledge-based courses, in both distance education and face-to-face classroom settings. Individual steps of the process are described and examples of its application are provided.

Key Words: Critical Thinking, Reflection, Pedagogy

The importance of critical thinking and reflection in education has been stressed repeatedly over the past several years, in national and international journal issues, numerous books and articles, and workshops held by various education authorities (Baron & Sternberg, 1987). Since this poster presentation is primarily about the R9 process and its use, there is no intent to provide a comprehensive review of the very broad range of critical thinking literature. However, critical thinking and reflection are discussed to the degree necessary to position the R9 process for the reader within that body of thought. It is important to note that the R9 process evolved from a desire to develop a pedagogical approach that would allow one to make critical thinking and reflection a part of the normal conduct of a domain knowledge-based course, rather than conferences, entire a desire to provide a course on critical thinking, such as that described by Mingers (2000).

Theoretical Framework

The literature on critical thinking and reflection covers a broad spectrum. Critical thinking, in particular, can be viewed from various perspectives.

1. One can take the limited perspective of a highly focused problem-solving approach of a typical total quality management (TQM) manual.
2. One can move to a broader -- but still skill-based – approach that is more about the *how and what* of critical thinking. This would be more in keeping with the informal logic movement (Ennis, 1987; Kiersky & Caste, 1995; Quellmalz, 1987; McPeck, 1990).
3. Beyond this can be found what one might term a more socially conscious perspective. To use Alvesson's and Willmott's (1992) term, a "softer" approach (p. 432) that shows some concern for higher-order human needs.
4. One can also move toward positions that indicate the goal of critical thinking should be social emancipation. This latter position is more in keeping with the ideas of critical pedagogy and critical practice (Mezirow, 1990; Freire, 1970), and moves toward critical theory (Habermas, 1994; Foucault, 1994) and critical social science (Fay, 1987).

On such a spectrum, the position of the R9 process is relatively modest. I wanted to provide something more than the basic problem solving of a TQM manual but something less than a call for emancipation or a study of critical social science. The process is closer to the informal logic movement than to the socially conscious perspective. I would like my position to be congruent with Said's (1983) comment that "It is not practising criticism either to validate the status quo or to join up with a priestly caste of acolytes and dogmatic metaphysicians" (p. 5). I am taking Said somewhat out of context -- he was referring to literary criticism – but the thought warrants reflection in this context. In the context of the domain knowledge-based course, I want to concentrate on fundamental questions such as those raised by Hughes (1996). Are the arguments and propositions sound in a logical sense? Do the conclusions follow from the premises? Are the premises justifiable? What are the underlying assumptions? A good working definition for critical thinking for my purpose is that of Brookfield (in Mezirow, 1987), which states, "Being a critical thinker involves more than cognitive activities such as logical reasoning or scrutinizing arguments for assertions unsupported by empirical evidence. Thinking critically involves our recognizing the assumptions underlying our beliefs and behaviours. It means we can give justifications for our ideas and actions. Most important, perhaps, it means we try to judge the rationality of these justifications" (p. xviii). In using Brookfield's definition, I use the phrase "recognising the assumptions underlying our beliefs and behaviours" in a very applied

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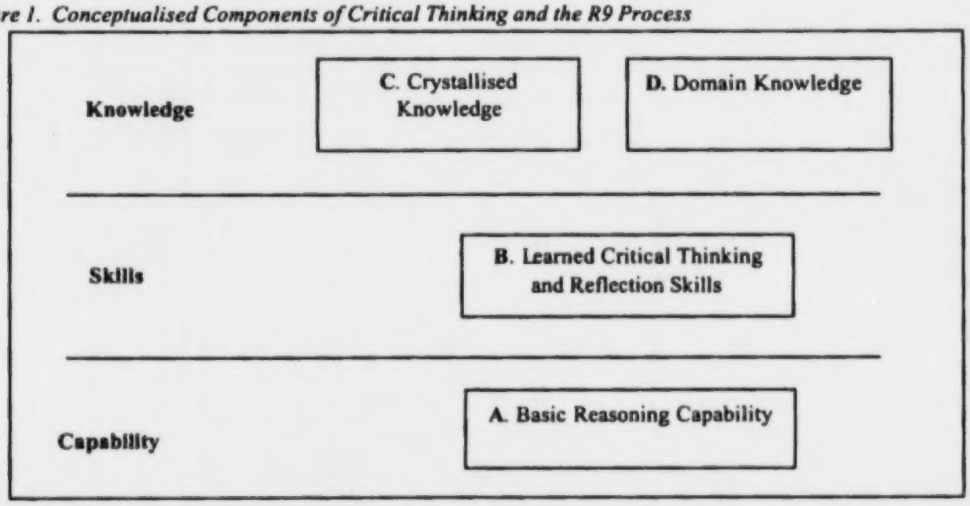
sense rather than, for example, referring to the assumptions that might underlie one's whole structure of personal values.

Moving from critical thinking to reflection, we return to Mezirow, who tells us that the three functions of reflection are to guide action, to give coherence to the unfamiliar, and to reassess the justification for what is already known. In the R9 context, the latter function is stressed. In relation to reflection, Schon (1987) quotes Alfred Kyle, a Dean of Engineering, as saying, "We know how to teach people to build ships but not how to figure out what ships to build" (p. 11). In part, my goal is that, as students learn how to build Dean Kyles's ships, they also learn (and practice) a bit about how to figure out which ships to build. I want to see students progressing toward becoming the reflective practitioners envisioned by Schon, who think and rethink some of their positions and assumptions, and practice what Schon (1983) called "reflection-in-action" (p. 50).

The second positioning issue relates to whether or not critical thinking can (or should) be taught separately, as a general skill applicable across domains of knowledge as advocated by the informal logic movement (ILM) (Ennis, 1987; Paul, 1990; Siegel, 1990). McPeck (1990), contrary to the ILM, insists critical thinking can only be taught in the context of a domain of knowledge. One cannot just *think*, but has to be thinking about something; and if that *something* were a domain one knows nothing about, critical thinking would be highly unlikely, if not impossible. My position here was to take somewhat from both schools of thought although, per McPeck, we are dealing with a specific domain of knowledge. I conceptualised three components of critical thinking (as it relates to the R9 process) as shown below and in poster 1.

Figure 1. Conceptualised Components of Critical Thinking and the R9 Process



Component A, basic reasoning capability, we seem to be born with. It equates very highly with IQ (McPeck, 1990), as well as what Cattell referred to as the we might find in a 12 or 13-year old adolescent (Merriam & Caffarella, 1991). Component B, learned critical thinking skills, we are taught – for example in critical thinking courses in university. One can find various lists of just what these skills are, and as McPeck noted, the skills may vary depending on whether the aim is to win the argument or to seek knowledge and truth. For our purposes, I am talking about such skills as Kiersky and Caste (1995) listed: identifying, analysing, and evaluating arguments; identifying fallacies; understanding inductive and deductive reasoning; and spotting implications and assumptions. For component C, crystallised knowledge, I borrowed the term *crystallised* from Cattell, since I suggest it equates to what Cattell called *crystallised intelligence*. Roughly, this is intelligence that is grounded in life experience – including acquired problem-solving skills and what some might call wisdom. As noted by Cross (in Merriam & Caffarella, 1991), education and experience heavily influence crystallised intelligence. Finally, component D, domain knowledge, represents the course content area. For example, if the course is human resource development, we are talking about knowledge in that domain. In terms of figure 1 components, my graduate students typically have good reasoning capability (component A) and some crystallised knowledge (component C) including some degree of critical thinking ability learned through experience. They may have some knowledge of the domain (component D), but few if any have normally had critical thinking courses, per se (component B). The domain knowledge component (component D) is our primary course content. The challenge was to include a critical

thinking and reflection component, but as part of the process of teaching the domain knowledge content. My response was the R9 process.

Contribution to HRD Knowledge

The major contribution of the R9 process is to provide a method to deal with two significant issues for both distance and classroom instruction. The first is week-to-week involvement and participation. How can one get everyone *effectively* involved in the class and interacting with the other students? The second issue is matching the structure and routine of courses to student needs and expectations, while maintaining a degree of rigor appropriate for graduate courses. R9 requires participation and involvement with others. As one of my MBA students put it, "There's no place to hide". The critical thinking and reflection components require considered, rather than spontaneous positions. Simply put, the R9 process involves a sequence of 3 cycles of reading, reflecting, and responding related to the material within each teaching/learning segment. The sequence and content of the steps is further described in table 1 and poster 2.

Developing the Process

My journey to the R9 Process spanned six courses and about five years. Five of the courses were totally asynchronous on-line courses that were part of a distance master's degree program in instructional and performance technology, and one was an MBA course in human resource management that met once a week for two hours. Asynchronous courses provide for the exchange of views through a bulletin board-type posting process, but do not provide for live, real-time conversation, such as one would have in a chat room or with one of the instant messenger services, such as AOL and Microsoft provide. In the MBA course, we had that opportunity for face-to-face interaction. The journey was not all about methodology, but was also about my own learning how to be effective in a distance environment

Courses One and Two. Courses one and two were conducted on a DOS-based program called First Reader – very basic by today's standards, but adequate for our purposes. As noted, the students, mostly adults working full time, were participating in a distance master's degree program. I tried to approach the class with adult learning principles in mind. This included such things as validation of the participants' past experiences, recognition that they were self-directed learners, involvement in establishing learning objectives, and finalising course design. In addition, I tried to get students to share in class governance. Evaluations indicated frustration with what students perceived to be a lack of clarity as to what was required of them. In course two, I tightened things up by laying out the objectives in advance and taking care of major structure items, but I still tried to provide a lot of room, and let discussions go where they would. Since we were more focused, the results were somewhat better, but participation and interaction was still not at the level I believed we needed and student evaluations still indicated a desire for more structure and clarity.

Course Three. As a result of my course two experience, I made a major shift with course three by going to a high degree of structure. The class was relatively small. I came up with two major discussion questions each week and half the class were required to respond to each question. In addition, students were assigned to provide feedback to three people who had the other question. I rotated this so that over the semester, everyone provided feedback to everyone else more than once. The feedback would then sometimes lead to further discussion but from an assessment standpoint, their requirement was one response and three feedback assignments weekly. I did learn that I had to be careful with my comments. If I made a comment on a response, for example, that comment would become the *school solution* and influence the people providing feedback – in effect cutting off their critical thinking process. The quality of work was good and student evaluations indicated they really liked knowing exactly what was required of them.

Course Four. In course four we moved to Lotus Learning Space, which provided more technical options, including web access, and more functions within the course. I stayed with the approach of assigning questions and specific feedback responsibilities. This was a larger class, so I increased the number of discussion questions. In addition to responding to an assigned question, each student gave feedback to people who had responded to different questions. The only downside here was that the assignment scheduling began to get a bit complex. The scheduling becomes a little difficult when one must (1) ensure students aren't providing feedback to people who had the same question and (2) ensure that feedback assignments rotate to different people throughout the semester. I adopted a

minimalist style, with a focus on ensuring that students were going down the right path, rather than trying to dazzle them with brilliant comments. I provided individual feedback messages commenting on responses and feedback quality, feedback on their individual assignments, and would of course respond to a problem, but not in the depth some others did. I would more likely point students to where they could find an answer for themselves. Again, I was pleased with the work of the students and students' evaluations of the course were very good.

Course Five. In course five we moved from Lotus Learning Space to a customised version of Lotus Notes. This was a most interesting class. One of the things that had concerned me was that while I was getting everyone involved and working with everyone else, I wasn't getting the degree of reflection that I felt we ought to have in a graduate course. Since we didn't have the option of the small graduate seminar, I decided to add a requirement to the responses and feedback that was called the *definitive response*. After receiving feedback, the students who had a particular question (in this course there were six weekly questions, each assigned to three students) had to develop and post a final answer. Since this is a heavy workload -- three tasks within a week -- I varied the format somewhat during the semester, and breaks in the routine proved welcome. Since I wanted the definitive responses to evidence some reflection and perhaps reconsideration, I tried to introduce the idea of *critically appreciative* feedback that would help those who had answered the questions expand their thinking. We were getting some good critical thinking in the responses, but not in the feedback. The feedback tended to be rather vanilla -- "I particularly liked this and that, nice job overall, keep up the good work". One of the most interesting things to come out of this course was the reaction to trying to get students to be critical in their feedback. The term *feedback* seemed to represent a very value laden concept for some students and most of this group resisted doing anything that was not seen as positive and reinforcing. Again, I was pleased with the work and 90% of the evaluations were quite high.

Course Six. Following course five, I gave more thought to the critical thinking-reflection issue and came up with the R9 process which involves three cycles of reading, reflecting, and responding (see table 1.). A major take-away from course five was the use of the term *feedback*. I dropped it and instead now use the term *critique*. I stress that the students' task, more than anything else, is to help expand the thinking of the person who prepared the response, and they can't do this by saying "good job, keep it up". Rather, they must point out what they see as flaws, point out other perspectives, and suggest alternative ideas. The process as described was used successfully in my next distance course and in course six.

Course six presented a difference challenge in three ways. First, in adapting a process developed for on-line courses to an MBA course that meets once a week for two hours. Second, in adapting to a new platform, WebCT. Finally, the class had 37 people with 10 basically permanent groups that stay together through the programme. The groups varied in size from 3 to 5, which further complicated scheduling. I dealt with this by assigning questions by groups, but still with individual initial responses. Critique responsibilities were also assigned by groups, but were still individual work. I rotated the groups for whom one's own group provided critiques. Rather than posting the definitive responses, each group provided a short presentation at the weekly class meeting. They had to point out their initial positions, what they learned from critiques, and what their final position was. They also had to mention the best critique they received. This was followed by a few minutes for questions and discussion. This was the first use of WebCT in our MBA programme. Within a few weeks I began to get student comments (both in person and via WebCT) that this was a good way of learning. Calling the task following initial responses a critique rather than feedback seemed to have the desired effect. While I occasionally had to nudge students about various aspects of their critiques, there was no resistance to the *concept* of critically reviewing responses. The class reacted favourably to the use of this process, and I perceived that considerably more real discourse and thinking was going on than in the lecture-based courses I had taught previously in the programme. A major difference was in seeing students offer *considered* positions, taken after they had done some thinking and after exposure to other perspectives, rather than just *spontaneous* positions taken and offered in the immediacy of the classroom meeting. Student ratings of the course were up from the preceding two years, which had followed a more traditional lecture and discussion format. (Note: Since course six, I have used R9 in two other face-to-face courses with excellent results -- both in terms of student ratings and my perceptions of the thinking and learning that was occurring.)

The R9 Process

The basic R9 process activities are shown in table 1 and in poster 2. The intent of the process is to provide a structure that takes students beyond just reading for retention and recall. It encourages them to think about the assignment contents (through question design), to think about and respond to others' comments, and then, in the

light of critiques and other responses, to reflect upon, rethink, and perhaps revise their response to the original issue raised by their question.

Table 1. *The Basic R9 Process Activities*

Step	Description
1	**Read** the assignment for basic understanding
2	**Reflect** on the contents as they relate to an assigned question
3	**Respond** to the question and post that response
4	**Read** the responses of others as assigned
5	**Reflect** on the responses of others
6	**Respond** to others' postings with coaching-type (critically appreciative) critiques that will expand their thinking on their question
7	**Receive** the critiques of others relating to one's own initial response
8	**Reflect** on the responses of others who had the same question and on the critiques that were received by all who had that question
9	**Revise** the response, in collaboration with others who had the question, determine the definitive response to the question, and post that response (or present, in a face-to-face class).

Using R9 in Distance Education Courses or On-Campus

It is important to explain the process clearly at the beginning, so that requirements and expectations are clear. Many students will not have used such a process before, and in particular, the idea of providing critiques to each other needs explanation. There is an advantage for the on-campus course here, since the course can be taken into the computer lab during the first meeting to practice the response and critique process with some very simple questions. It may take a few weeks for a distance education class to shake down. On the other hand, all but new distance education students will be used to similar software, and it is primarily the three *read, reflect, respond* cycles that need to be explained. Examples of how both a typical distance education week and how a typical on-campus course might be structured and scheduled are shown in poster 2.

Application Issues

The Use of Technology. Technology that effectively handles asynchronous communication in a bulletin board-type format is essential for the process, but this does not have to be particularly sophisticated. R9 has been used successfully with a graduate-level distance education course using a version of Lotus Notes software and in an on-campus situation with three different levels of courses using WebCT software

Flexibility. There is more opportunity for flexibility in the process than one might expect. For example, by opening the weekly assignment sheets early, say the preceding Friday, those who want to do most of their work on the weekend can both be contributing to the definitive response from the current week and developing their initial response for the next week.

Scheduling. If the process is structured so that during the semester, (a) students will receive critiques from everyone in the class, (b) students will work with everyone else in the class in developing definitive responses, and (c) all students will have had responsibility for coordinating collaboration on the definitive responses, then scheduling is critical.

Questions. The questions are very important in order to promote critical thinking. They should require the student to think and perhaps question what the reading has to say, do some analysis, take a position, and support it. Most students handle the initial response issues fairly well.

Critiques. Critiques tend to be another matter. It may take a few weeks to get students into the flow of *critically appreciative* critiques – trying to help other students expand their thinking and perhaps see other perspectives. The on-campus instructor has an advantage here, with the opportunity for weekly face-to-face reinforcement of the type critiques that are needed. Grading. It is important that a significant part of the course grade be a function of successful participation in the R9 process. Participation in the process needs to be important enough that students know they cannot ignore it. Whether critical thinking and reflection is occurring is at least as important, if not more important, than the specific ideas developed. Grading should not inhibit expression in the process.

Role of the Instructor. Front-end work by the instructor is of course important in all courses, but perhaps even more important when using R9. Considerable preparation of the resources that will be needed in the software platform being used is required. Once class begins, one must be constantly monitoring responses and critiques, and

it is very important to say enough that students know the instructor is there. If, for example, marks are going to be lost due to a superficial response or critique, the student should be told immediately via private message. The primary public place for the instructor to offer comments and critique is in connection with definitive responses, whether posted or presented in class. At that time, one can ensure key learning points are covered.

Strengths and Limitations of the Process

The R9 process is offered as one answer of how to increase critical thinking and reflection in teaching domain knowledge-based courses. It can be a useful tool for increasing critical thinking and reflection, and improving the quality of dialogue in both distance and face-to-face courses at the graduate level. It is to some degree a *leveller* in that it minimises the ability of particular students to dominate or others to not participate. This has been useful when integrating groups of students whose prior education has been in systems where the approach was focussed on content recall with other groups of students who have had more exposure to a more critical, questioning approach. While some students feel the workload is heavy, most seem to appreciate the course being clearly laid out and knowing exactly what they have to do. This seems to be very important to degree-seeking adults who are working full time and may have families, and whose time for study is limited.

On the other hand, there are undoubtedly subject matter areas, as well as levels of students (for example, some undergraduate levels) where this approach might not be appropriate. In addition, there will be students who want a more free wheeling approach with less structure and who may become frustrated. Also, it is somewhat time-intensive for the instructor, particularly as class size increases, and I have not yet discovered a way to adapt it for really large classes.

References

Alvesson, M., & Willmott, H. (1992). On the idea of emancipation in management and organisation studies. *Academy of Management Review 17* (3): 432-464.

Baron, J. & Sternberg, R. (Eds.) (1987). *Teaching thinking skills: theory and practice*. New York: W. H. Freeman and Company.

Ennis, R. (1987). A taxonomy of critical thinking dispositions and abilities. In J. Baron & R. Sternberg (Eds.), *Teaching Thinking Skills: Theory and Practice*. New York: W. H. Freeman and Company.

Fay, B. (1987). *Critical social science*. Cambridge: Polity Press.

Foucault, M. (1994). *Power*. New York: The New Press.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Herter and Herter.

Habermas, J. (1994). *The past as future*. Cambridge: Polity Press.

Hughes, W. (1996). *Critical thinking*. Peterborough, Ontario, Canada: Broadview Press.

Kiersky, J., & Caste, N. (1995). *Thinking critically: techniques for logical reasoning*. St. Paul, MN: West Publishing Company.

McPeck, J. (1990) (Ed.). *Teaching critical thinking*. New York: Routledge.

Merriam, S., & Caffarella, R. (1991). *Learning in adulthood*. San Francisco: Jossey-Bass.

Mezirow, J. (1990). *Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning*. San Francisco: Jossey-Bass.

Mingers, J. (2000). What is it to be critical? Teaching a critical approach to management undergraduates. *Management Learning 31* (2). Thousand Oaks, CA: Sage Publications.

Paul, R. (1990). McPeck's mistakes. In J. McPeck (Ed.), *Teaching Critical Thinking*. New York: Routledge.

Quellmalz, E. (1987). Developing reasoning skills. In J. Baron & R. Sternberg (Eds.), *Teaching Thinking Skills: Theory and Practice*. New York: W. H. Freeman and Company.

Said, E. (1983). *The world, the text, and the critic*. Cambridge, MA: Harvard University Press.

Schon, D. (1983). *The reflective practitioner: how professionals think in action*. New York: Basic Books, Inc.

Schon, D. (1987). *Educating the reflective practitioner: toward a new design for teaching and learning in the professions*. San Francisco: Jossey-Bass.

Siegel, H. (1990). McPeck, informal logic, and the nature of critical thinking. In J. McPeck (Ed.), *Teaching Critical Thinking*. New York: Routledge.

Using Technology to Help Foster Critical Thinking and Reflection in Distance and Classroom Instruction:
A Poster Presentation of the "R9" Process – Poster One Miniature

Critical Thinking Defined

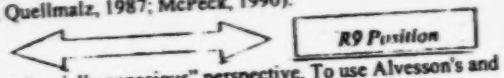
"Being a critical thinker involves more than cognitive activities such as logical reasoning or scrutinizing arguments for assertions unsupported by empirical evidence. Thinking critically involves our recognizing the assumptions underlying our beliefs and behaviours. It means we can give justifications for our ideas and actions. Most important, perhaps, it means we try to judge the rationality of these justifications." (Brookfield, in Mezirow [1987], p. xviii).

Reflection

Mezirow (1987) tells us that the three functions of reflection are to guide action, to give coherence to the unfamiliar, and to reassess the justification for what is already known. Schon (1987) stresses reflective practice. I want to see students progressing toward becoming the reflective practitioners envisioned by Schon, who think and rethink some of their positions and assumptions, and practice what Schon (1983) called "reflection-in-action" (p. 50).

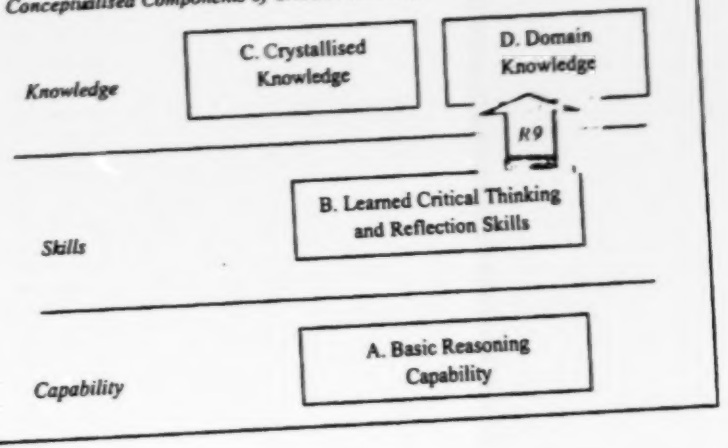
Perspectives on Critical Thinking

1. The limited perspective of a highly focused problem-solving approach (i.e. a TQM manual).
2. The broader – but still skill-based – approach that is more about the "how and what" of critical thinking. This is more in keeping with the informal logic movement (Ennis, 1987; Kiersky & Caste, 1995; Quellmalz, 1987; McPeck, 1990).



3. A more "socially conscious" perspective. To use Alvesson's and Willmott's (1992) term, a "softer" approach (p. 432) that shows some concern for higher-order human needs.
4. Those perspectives that suggest the goal of critical thinking should be social emancipation. This latter position is more in keeping with the ideas of critical pedagogy and critical practice (Mezirow, 1990; Freire, 1970), and moves toward critical theory (Habermas, 1994; Foucault, 1994) and critical social science (Fay, 1987).

Conceptualised Components of Critical Thinking and the R9 Process



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Using Technology to Help Foster Critical Thinking and Reflection in Distance and Classroom Instruction:
A Poster Presentation of the "R9" Process– Poster Two Miniature

R9 Process Steps

Step	Description
1	Read the assignment for basic understanding.
2	Reflect on the contents as they relate to a question.
3	Respond to the question and post that response.
4	Read the responses of others as assigned.
5	Reflect on the responses of others (to other questions).
6	Respond to others' postings with critiques that will expand their thinking on their questions.
7	Read the critiques of others on one's own work.
8	Reflect on all critiques received on the same question.
9	Revise the response, create the "definitive response" to the question with others, and post or present.

R9 Application Issues

Technology	Must handle asynchronous communication in bulletin board-type format. Technical support for distance students.
Flexibility	May need to adjust schedule for students working full-time – should provide "break" weeks with differing requirements.
Scheduling	Rotational issues around critiques, different groups for definitive responses (DRs), and DR coordination.
Questions	Must require critical thinking, not just repeating assignment.
Critiques	Must help expand the thinking of the recipient.
Grading	Participation in the process must have significant weight.
Instructor's Role	Heavy front -end work, continuous monitoring and correction, and timing of final comments (don't jump in too early).

Typical Class Schedules Using R9

Day	Steps	Process Activity	Venue	Instructor Role
Prior to class		Set up class structure in software. On-campus, explain R9 at initial meeting and practice in computer lab.	Selected software platform. On campus, in class.	Lay out structure in platform, post all resources, prepare questions
Days 1-3	R 1-3	Read assignment, reflect on content, and post response to assigned question by evening of day 3.	Selected software platform – public posting.	Monitor, guidance as needed
Days 4-5	R 4-6	Read and reflect upon others' responses and provide critiques to others as assigned by evening of day 5.	Selected software platform – public posting.	Monitor, guidance as needed
Days 6-7	R 7-9	Read and reflect upon critiques provided by others. Develop definitive response (DR) with others who had the same question, considering all responses and critiques. Post by evening of day 7 or present in class.	Distance class group work private until DR posted. Campus groups meet and present DR in class.	Monitor and provide public feedback on each group'sDR (posted or presentation), stressing key learning points.
Ongoing			Selected software platform or private meetings.	Provide private feedback on quality of students' work.

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